Ecological Survey of Alaska's North Slope
Summer 1969 and 1970

AtlanticRichfieldCompany

Pam: 59:(*49)
GAV
1969-70

POLAR
PAM
3026

POLARPAM

The author, Angus Gavin is ecologist for the Alaskan operations of the Atlantic Richfield Company. Since 1969, he has been studying the effects of oil development on Alaska's North Slope and making recommendations to insure maximum protection of the wildlife and the Arctic environment.

Emigrating to Canada from Scotland, Mr. Gavin has spent over 40 years studying the wildlife and its environment in the northernmost reaches of the western hemisphere. Formerly senior vice-president of Ducks Unlimited (Canada), he is regarded as one of the foremost ecological naturalists with particular expertise in the arctic and subarctic areas of North America.

This report contains the results of ecological studies conducted by Mr. Gavin for Atlantic Richfield Company during 1969 and 1970.

Ecological Survey of Alaska's North Slope Summer 1969 and 1970

Over the past two years we have had the opportunity to study and evaluate the effects of petroleum development and other related activities on the North Slope on the wildlife of the area and its environment.

Our sphere of operations has included that part of the North Slope lying between the Canning and Colville Rivers and between the Brooks Range and the Beaufort Sea. Within this area oil development activity is taking place, although most activity is confined to a relatively small zone between the Kuparuk and the Sagavanirktok Rivers and covers an area of approximately 30 square miles of coastal plain. While our studies have been primarily slanted toward collecting data on caribou, waterfowl and fish, all other animals and birds observed were recorded and as much information as possible collected. A constant check has also been kept on oil field activities and their relation to the total environment.

Our headquarters has been the Atlantic Richfield operations center at Prudhoe Bay and we have used a Bell Jet Ranger helicopter as transportation.

Description of the Study Area

The portion of the Alaskan North Slope under study consists of approximately 16,000 square miles of Coastal Plain. The major part of this is comparatively smooth, rising imperceptibly from the Arctic Ocean to a maximum altitude of 500 to 600 feet. Pingos break the flat monotony and produce an undulating skyline. Generally, the shore is quite flat—broken only by sand dunes near some of the river deltas—and much of it is only a few feet above the ocean level.

The whole area is very poorly drained and consequently quite marshy. Much of this part of the coastal plain is covered by elongated thaw lakes ranging in size from only a few yards to over a mile in length. All are quite shallow, varying from a foot to a maximum of ten feet in depth. The entire area is underlain by permafrost which reaches a depth of over 1000 feet. Ice wedge polygons cover the entire plains. Several rivers and streams intersect our study area, the major ones being the Colville, Canning and Sagavanirktok. All are heavily braided and contain large quantities of gravel.

Surface vegetation throughout the coastal plains is typical tundra type, with mosses, lichens, grasses and sedges being the most dominant. Throughout the numerous valleys and river courses intensive stands of willow and dwarf birch prevail. Since the entire area is poorly drained, sedge grass marshes are numerous. Vegetative components of these marshes vary greatly, but the dominant plants are various species of carex and grass interspersed with sedge-spagnum moss and bog type plants.

Weather throughout the summer of 1970 was quite good. Temperatures ranged from a low of +20°F on May 20 to a high of +65°F on August 27, dropping to freezing temperatures again by September when +20°F was recorded. Many of the smaller lakes and ponds froze over at this time, and some snow flurries were encountered. Thawing temperatures hit the area again on September 9 when a high of +45°F was reached. Most of the lakes and ponds thawed out, and there was a feeling of Indian Summer in the air. This, however, did not last too long as freeze-up took over the week of September 20.

General Outline of Wildlife in Study Area

Within our study area there are many species of wildlife, all of which play an important part in the overall make-up of the ecological and biological systems. Mammals include barren ground grizzly bears, moose, caribou, wolves, wolverines, foxes, ground squirrels, lemming and Arctic shrew. Bird life is plentiful with several different varieties of geese, many species of ducks, numerous different shorebirds, whistling swan, loons, gulls, terns, jaegers, hawks, eagles, snowy owls, plovers, ptarmigan and a variety of tundra-nesting small birds.

As noted, streams within the area are heavily braided and generally quite swift, with rocky gravel or silt bottoms and relatively few really deep pools. These streams can become quite turbid in a short period from rains or melting snow in the Brooks Range where all the major ones have their headwaters. Most rivers carry char, grayling and whitefish on spawning runs, and some of the deeper ones may serve as a wintering area for Arctic char. Headwater lakes and tributaries are the major spawning areas.

Caribou—Rangifer Arcticus Arcticus

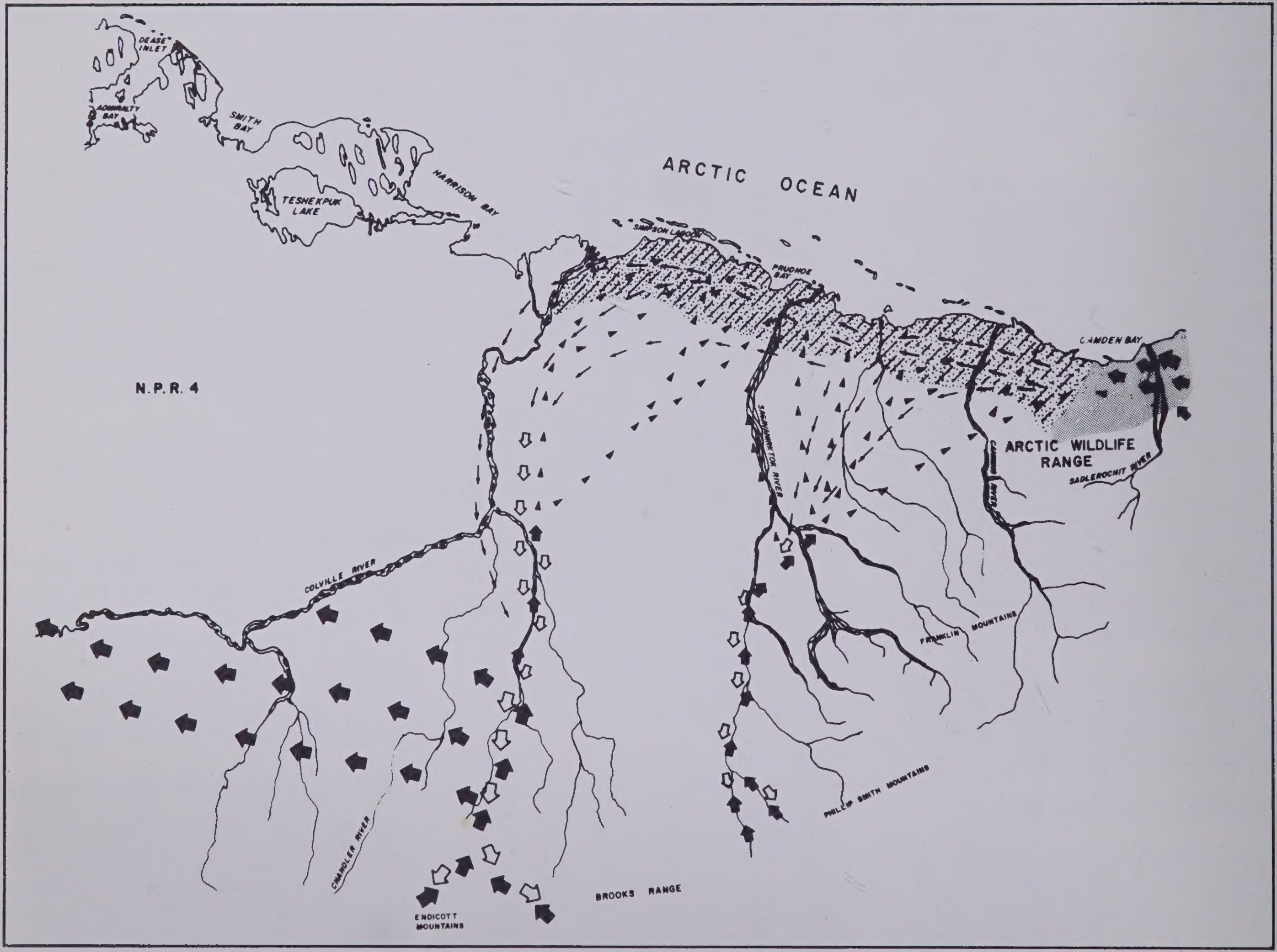
The area north of the Brooks Range commonly called the North Slope is inhabited by what is generally accepted as two distinct herds of caribou, the Westerly or Arctic, and the Easterly or Porcupine, herd. Estimates on the populations of these herds vary; however, the most recent figures, according to data and maps issued by the State Department of Fish and Game, place the population of the Arctic herd at 300,000 animals and of the Porcupine herd at around 140,000.

Rec'd: JUN 5 1973
Order No: Letter May 25/73
Price Gift
Acc. No. Atlantic Richfield

BOREAL INSTITUTE
LIBRARY

11434

Figure 1



Caribou Migration Patterns

Major spring migration routes ➡
Minor spring migration routes ➡ ▸
Major fall migration routes ⇨
Minor fall migration routes ⇨ →
Major calving grounds ▒
Minor calving grounds ▒
Summer range ▨

The summer ranges of these animals extend over a wide area of the North Slope and, from survey data collected over the past two years, there are indications of some overlapping, particularly during the calving season. Generally, the summer range of the Arctic herd extends from Cape Lisbourne on the west to the Colville River on the east, with some animals occasionally reaching as far north as Point Barrow. Calving grounds for the main part of the Arctic herd lie along the upper reaches of the Colville and Utukok Rivers. The summer range of the Porcupine herd extends from the upper Porcupine River north to the Arctic Ocean and west to the Canning River. Their main calving grounds extend from Camden Bay southeastward to the foothills of the Romanzof and British Mountains. Although geographically there is a wide gap between the summer ranges of these two herds, our observations indicate that, while the major portions of the herds are widely separated, offshoots of both intermingle in that portion of the range lying east of the Sagavanirktok River and west of the Canning River. During the spring of 1970, a herd of approximately 20,000 animals used the Atigun and Sagavanirktok Valleys in migration, breaking to the northeast south of Sagwon and spreading out over the plains near the coast on both sides of the Canning River. Whether this herd came from the Porcupine herd or the Arctic herd is problematical—more than likely the Arctic herd. From this migration it is evident that in some years the Sagavanirktok Valley plays host to a fairly large movement of animals.

Although patterns and migrations may vary with the weather during the fall, spring movements to the calving grounds are on a fairly tight schedule. Generally, the movement of animals from the Brooks Range and the Porcupine Valley to the North Slope begins around the first of May and reaches a peak during the latter part of May and first few days of June. Peak of the calving period is reached by about June 6. Bulls are considerably later in reaching the Slope in any numbers. They stay in the foothills area until after calving season, then gradually move north until they join up with the cows a few weeks before the start of their slow migration back to the wintering grounds. General summer movements within the slope area under study are from east to west, although there are offshoots from this pattern (see Figure 1). For the first three or four weeks after the calving period there is no particular pattern evident, but by the first week of July there is a gradual slow movement to the west and south, with a gathering of cows and calves together into small scattered bunches. By the beginning of August, small herds have developed, and a scattering of bulls begin to appear with them.

Of the two herds which use the North Slope as their summer range, a maximum of 30,000 animals frequent the area between the Colville and Canning Rivers. These are the animals which form the base for our study, since their movements and habits are tied in very closely with the oil field development. This area of the slope had not been studied before the commencement of oil exploration and development work, so we have no way of knowing the pattern and movement of these animals within the study zone in earlier times.

Our 1969 studies began just after the calving season and continued on through the fall migration period. Studies in 1970 started on April 30 with the first movement of caribou out of the Brooks Range onto the Slope. On this date, in company with Brian Sage, biologist for British Petroleum, we intercepted a herd of several thousand animals at the five thousand foot level heading north on a pass just east of Anaktuvuk. These were part of the Arctic herd moving toward their calving grounds along the upper reaches of the Colville River. From May 1 until the fall our base of operations was Prudhoe Bay. From this point close observation of caribou movements within the study area have been kept, with particular emphasis on patterns and behavior within the oil activity zone.

While few caribou drop their calves within the major oil field area, their movements during the summer bring them well within the field and, during much of the summer and fall caribou can usually be seen from the ARCO-Humble operations base. On August 19,1969 a fall movement of some 6,000 animals, including cows, calves, yearlings and bulls, passed through the field in close proximity to the main base and for several days grazed within normal camera range of many of the rigs. On July 13 of this year a herd of 1,500-2,000 animals passed through the middle of the base camps and had to be herded off the main runway in order to allow planes to land.

Although air traffic in and around the field is comparatively heavy at times, this does not seem to interfere with the normal day-to-day movement of these animals. In fact, they seem rather blasé about the whole proceedings. Much of the time, they pay little attention to aircraft movements and only become disturbed if an attempt is made to harass them.

The composition of caribou populations within the study zone has not varied greatly during the past two years. Total populations have been slightly higher in 1970, partly due to a greater movement of animals up the Sagavanirktok Valley. Calving success has been quite high, roughly 60 percent during 1969 and 70 percent during 1970. Wolf predation has been extremely light, few kills having been noted. Since only an occasional wolf has been seen during the entire summer and fall after few sightings in early spring, the wolf population seems to be at a very low level.

While there are few ground obstructions such as pipelines or fences within the oil development area at present, there are sufficient obstacles to give us some indication of caribou behavior in response to foreign materials. In some areas fairly large waterlines have been laid on top of gravel pads and some temporary feeder lines installed above ground. Observations show that caribou encountering such obstacles in their path have no hesitation in stepping over them.

Fall migrations during 1970 have been slow and leisurely with no heavy movement at any one time. Small herds moved steadily west and south throughout August, leaving few animals along the coastal zone by the beginning of September. Routes followed were identical to those of 1969—the major population using the coastal route west toward the Colville River, with a minor movement south along the Sagavanirktok River (see Figure 1).

A survey flight east toward the Canning River on September 6 located a few small groups of about 200 animals moving southwest toward the Sag Valley. On September 7 a survey of the area west of Prudhoe Bay to the Colville River showed the majority of those animals left had migrated to the vicinity of Ugnu and were moving steadily southwest toward the foothills and eventually through the Brooks Range to their wintering grounds.

Waterfowl

The part of the North Slope comprising our study area has four distinct types of habitat. In the delta areas are wide alluvial flats and many gravel and silt islands covered with a sparse growth of stunted willow; a sedge grass, marsh type habitat is dominant along the coastal plains; the Tundra-Lacustrine water edge habitat exists in the low lying coastal areas; and the Tussock-Heath type of habitat is found in areas with better drained soils.

Observations of waterfowl and other birds began on May 10 when Canada geese were the first spring arrivals. From that date on through the nesting, brood season, and fall migration period close observations were made and records kept.

Counts of the waterfowl population within the study area were made from a helicopter, using total coverage for counts of the deltas and coast for approximately ten miles inland. For the remainder of the survey area, the strip method was used. Coverage began on June 9 and was completed on June 14.

Although the average of 2.8 pairs per square mile for the total area is not exceptionally high, there are pockets of comparatively high density on some of the deltas and Tundra-Lacustrine types of habitat in the low lying coastal regions. Areas such as the region from the Colville River to Ugnu, just south of Oliktok Point, averaged 5.8 pairs per square mile, and the area in the vicinity of the Kuparuk River averaged 5.6 pairs per square mile. Further to the east, populations around the Sag River delta, although lighter than those in the former two areas, still averaged 4.9 pairs per square mile (see Figure 2).

Composition of the species comprising these counts in the various survey areas are shown in Table 1.

Weather during the first two days of the survey was good, with temperatures during the day reaching 40°F. On June 8, however, conditions changed considerably, as temperatures dropped to 24°F with snow flurries. During the remainder of the survey, temperatures stayed quite low, with the maximum being reached on June 12, when the thermometer managed to climb to 32°F.

Considerable nesting activity was underway before our surveys started. The first nest was found on May 28— a whitefronted goose with 5 eggs. On May 29, a whistling swan was sighted sitting on a nest in the Mikkelson Bay area. While some birds started nesting activity soon after arriving, there were others that apparently held off until better weather arrived, as indicated by the considerable number of late broods seen during our fall caribou survey which commenced on August 17.

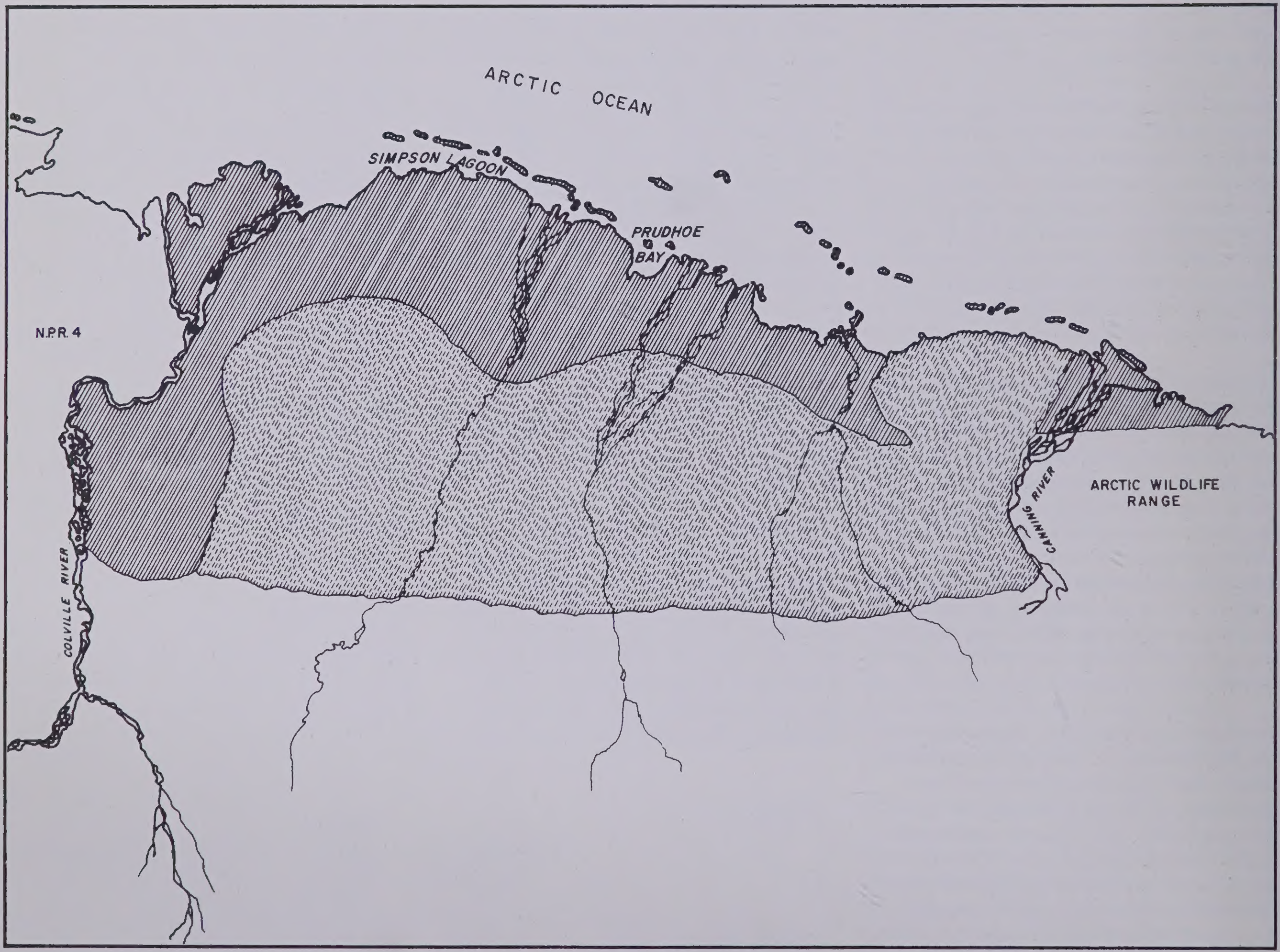
Brood count surveys were started on July 23 and were completed by August 1. Initially, these surveys showed a rather poor hatch, particularly among the whistling swans, loons, scaup and black brant. From a total of 37 pairs of swan within the survey area, only 18 were successful, and many of these had only one cygnet. Greater scaup were completely unsuccessful, as no broods were seen during the survey period. Loons, both Arctic and red throated, showed very poor results, although some late hatches were seen during the middle of August. Black brant, which showed a good overall percentage of breeding pairs during the spring count, had only a 22 percent successful hatch. Whitefronted geese, eiders, oldsquaw and pintails did considerably better and brought the overall hatching success figure up to 34 percent. Late broods which were evident during our fall caribou counts would add a percentage or two to this figure, but not enough to make significant difference. The reason for the poor hatching success of some of these birds is not known. However, it seems logical that since many, particularly the swans and some of the geese, were nesting during the latter part of May when temperatures went as low as 20°F., the eggs may have been touched by frost, unless the birds were incubating at the time. This is by no means an uncommon occurrence in the Arctic.

Since we were using a helicopter on skis for our survey work, we were unable to visit many of the offshore islands which are favorite nesting areas for eiders and oldsquaws. On August 6, however, an opportunity to visit one of the main islands arose when we accompanied Jim King and Jim Bartonek of the U. S. Fish and Wildlife Service and Dr. William Sladen of Johns Hopkins University in their float-equipped Beaver to Cross Island. This island is one of the chain lying approximately fifteen miles north of Prudhoe Bay. Its total length is about four miles, the width varying up to three-quarters of a mile. Situated on the highest point of this island, which is only about 15 feet above sea level, is an old broken-down cabin measuring about 8 foot square. In all probability, it was used during the time when the DEW line was being constructed, since there is a broken metal tower lying nearby. A survey of this island produced 97 eider nests, all of which appeared to have hatched successfully. One of the most interesting aspects of this survey was that inside the old cabin seven eiders had nested, and immediately around it some 25 others had built their nests. The majority of the remaining nests which we found were in the shelter of old drift logs or among very sparse vegetation. Terns and sabines gulls were also using this island as nesting sites. Several young sabines were seen in the water along the shore edge. Flocks of oldsquaws were in the shelter of the island, and it is assumed that they were using it as a moulting area.

TABLE 1

	Colville River/ Ugnu Area %	Kuparuk River Transect %	Sag River Delta %	Remainder of Survey Area %
Old Squaw	30	26	28	38
Whitefronted Geese	24	12	16	9
Eiders	17	23	22	31
Pintails	12	19	22	15
Lesser Canadas	8	9	11	1
Black Brant	6	11	6	2
Greater Scaup	2	—	—	1
Widgeon	1	—	—	1
Mallards	—	—	1	Trace
Greenwinged Teal	—	—	Trace	Trace
Scoters	—	—	—	2

Figure 2



Water Fowl Use Map

Breeding pair per square mile 2.5 to 5.8 ▨
Breeding pair per square mile 0 to 2.0 ▨
Area average 2.8 pairs per sq. mi.

First noticeable fall movement of birds into the study area was on August 21, when several large flocks of white-fronted geese and brant geese and some small flocks of snow geese were seen moving on to the delta flats at the mouth of the Sagavanirktok River. The build-up of birds during the next week to ten days was quite heavy. Large flocks of geese could be seen grazing on the river deltas and other marshy flat areas. While many birds were moving into the Prudhoe Bay area, there was also a fairly steady outward movement, and by the first few days of September a large part of the population had gone. Some pintails, oldsquaws, eiders and geese were still in the area on September 6, although temperatures had dropped to 22°F and many of the small ponds were frozen over. A survey of the area by helicopter on September 7 showed most of the small lakes frozen and many of the larger ones ringed with ice. Some Arctic and red throated loons with young were trying to keep holes open, but without a good long spell of warm weather, the majority of these young birds would undoubtedly perish. Three pairs of swans with a total of six young were also seen, but they were in larger waters which might stay open long enough for the young to get on the wing. Some scattered flocks of brant, whitefronted geese, oldsquaws and eiders were still in the area, but essentially the waterfowl season on the Slope was over for 1970.

(See Appendix A for an annotated list of birds.)

Fish

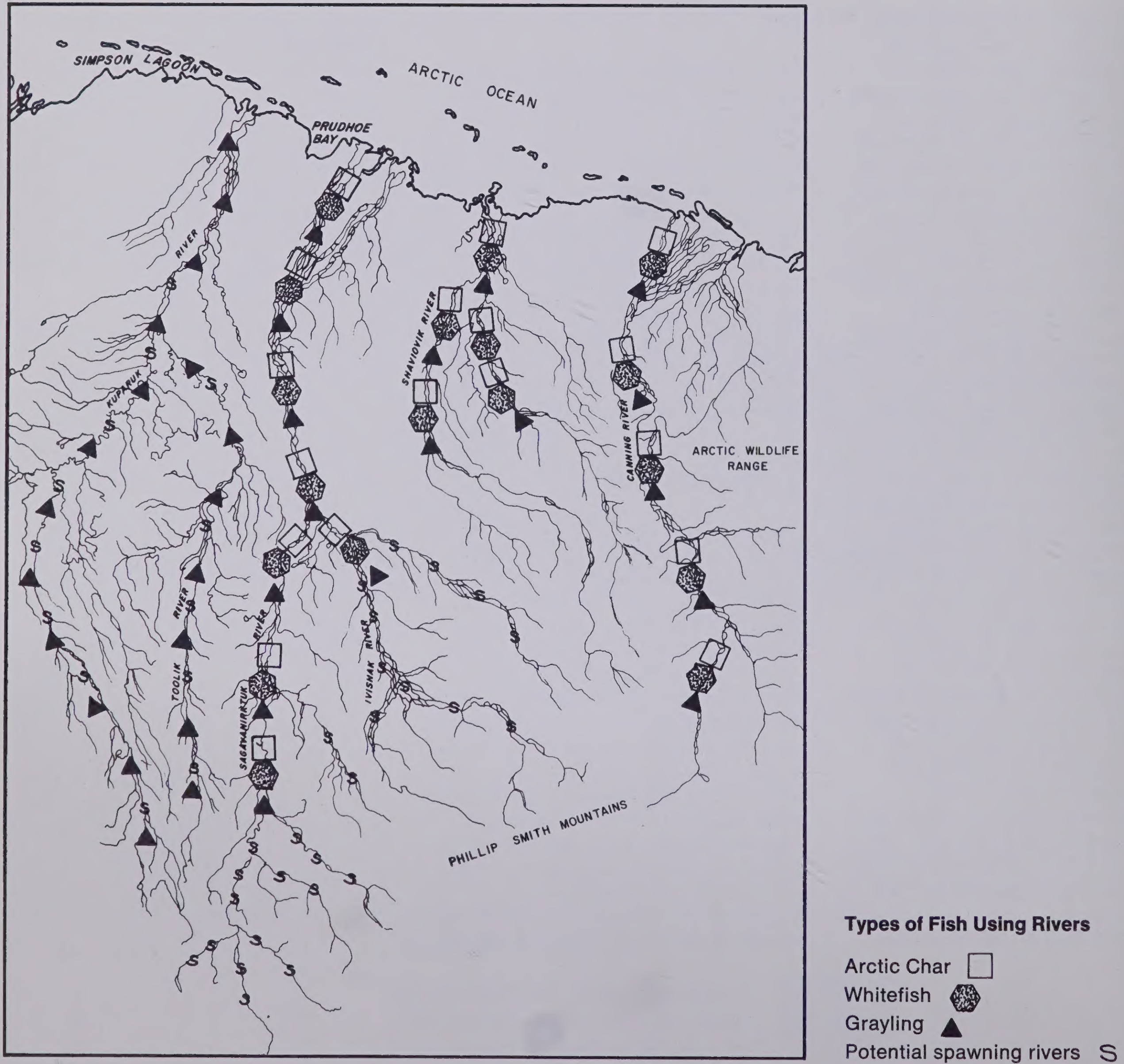
During the summer of 1970 test netting was carried out on the Sagavanirktok River in an effort to determine the status and type of fish using this stream and to evaluate the ecological impact oil development may have on its fish use. Large quantities of gravel from the alluvial flats on this river are being used for the building of roads, ramps and runways, and an assessment of the effects of this gravel removal on fish runs in the river was necessary. While complete data on age, growth and sexual maturity of fish caught this summer will not be available until laboratory test results are completed, we do have some information on time and potential volume of fish runs in the river.

The spring breakup occurred on May 28 this year. Immediately after breakup, there is a run of small Arctic char, averaging about three pounds in size. This is not a particularly heavy run, but it lasts until around the middle of June when it tapers off. Starting about the second week of July, potential spawning fish start moving up the river, and these continue well into August. These fish are of good size, reaching ten pounds and over although no exceptionally large ones were caught in our nets. After about August 15 there is a comparative lull for a short period, following which a heavy run of small two-to-three pound fish enter the river. This latter run of fish are on what is known as a cleaning run and will only stay in the river for a short period before going back out to sea. While all the data on fish caught this summer are not yet available, there is some very useful information on hand, which was gathered by the Alaska Fish and Game Department during the summer of 1969. This is contained in a report on testing done on the Sagavanirktok River and some of its tributaries. Figure 3 shows the types of fish found in the rivers on the North Slope.

The Sagavanirktok River is an important one from a fisheries standpoint and many of the tributaries and headwater lakes which feed this river are vital spawning areas that should not be disturbed by the extraction of gravel, should oil activities come within this vicinity.

While large amounts of gravel are still being removed from river beds near the coast where fish do not spawn—and more will be used during the next year or so—this has not affected the capabilities of these streams to handle fish runs.

Figure 3


SIMPSON LAGOON
ARCTIC OCEAN
PRUDHOE BAY
RIVER
KUPARUK
SHAVIOVIK RIVER
CANNING RIVER
ARCTIC WILDLIFE RANGE
TOOLIK RIVER
SAGAVANIRKTUK RIVER
IVISHAK RIVER
PHILLIP SMITH MOUNTAINS
Types of Fish Using Rivers
Arctic Char □
Whitefish ⬢
Grayling ▲
Potential spawning rivers S

Barren Ground Grizzly

Although no concerted effort was made to inventory and catalogue all grizzly bear on this area of the North Slope, a record was kept of all those seen during our various other surveys. These were plotted on our maps, giving numbers seen, location and date observed (see Figure 4). Since these animals hibernate in the Brooks Range during the winter, the Slope area is primarily their summer range, with few being seen at this latitude before the end of May. Generally, the first ones seen in the spring are in the valleys along the foothills, with a gradual movement northward along the river and valley bottoms with the peak number being reached on the Slope during July and August.

During 1969, a total of ten bears, including four cubs, were seen in this area. In 1970, thirty-one bears, including three cubs, were recorded. While there is no doubt that some of the bears seen were recorded on more than one occasion, it is quite evident that the grizzly bear population on this part of the Slope is in a good healthy condition. The oil development activities are probably attracting some of these bears. Having a tremendous sense of smell, they can be attracted from a long way off. Once they discover the availability of food, they are difficult to discourage and can be extremely dangerous if disturbed while eating; however, there is no indication that the oil activity is in any way endangering their livelihood or normal movements.

Wolves

The population of wolves in this area of the Slope is extremely low. Whether it is a natural condition for this part of the country or whether the population has been reduced through over-harvest is difficult to determine. While caribou populations are not as abundant as in some other parts of the Arctic Plains, there are sufficient animals to support several packs of wolves, each keeping within its own hunting territory. In all our surveys during 1969 only two wolves were sighted. In 1970 only two small packs were seen—one pack on May 5 in the Beechy Point area composed of two blacks and four grays, and the other pack on May 9 in the Kavik area consisting of three animals, one black and two grays. A female at a den site on a pingo northwest of Home-Bush and one at Franklin Bluffs were the only other wolves seen. The one at Franklin Bluffs was spotted on several different occasions and, although no den was located, presumably one was nearby.

Lemming

During 1969, these little mouse-like animals were extremely plentiful during the summer and early fall. When these small rodents reach the peak of their cycle, however, and food becomes scarce, they take off on what has often been referred to as a suicide march. While this is more fantasy than fact, they do migrate out of an area en masse, often moving long distances before they find another suitable location on the Arctic tundra and scatter out to begin the cycle once more. Many undoubtedly die during their forced marches, and thousands of others are eaten by foxes and wolves, but we doubt that they purposely commit suicide in order to reduce their population.

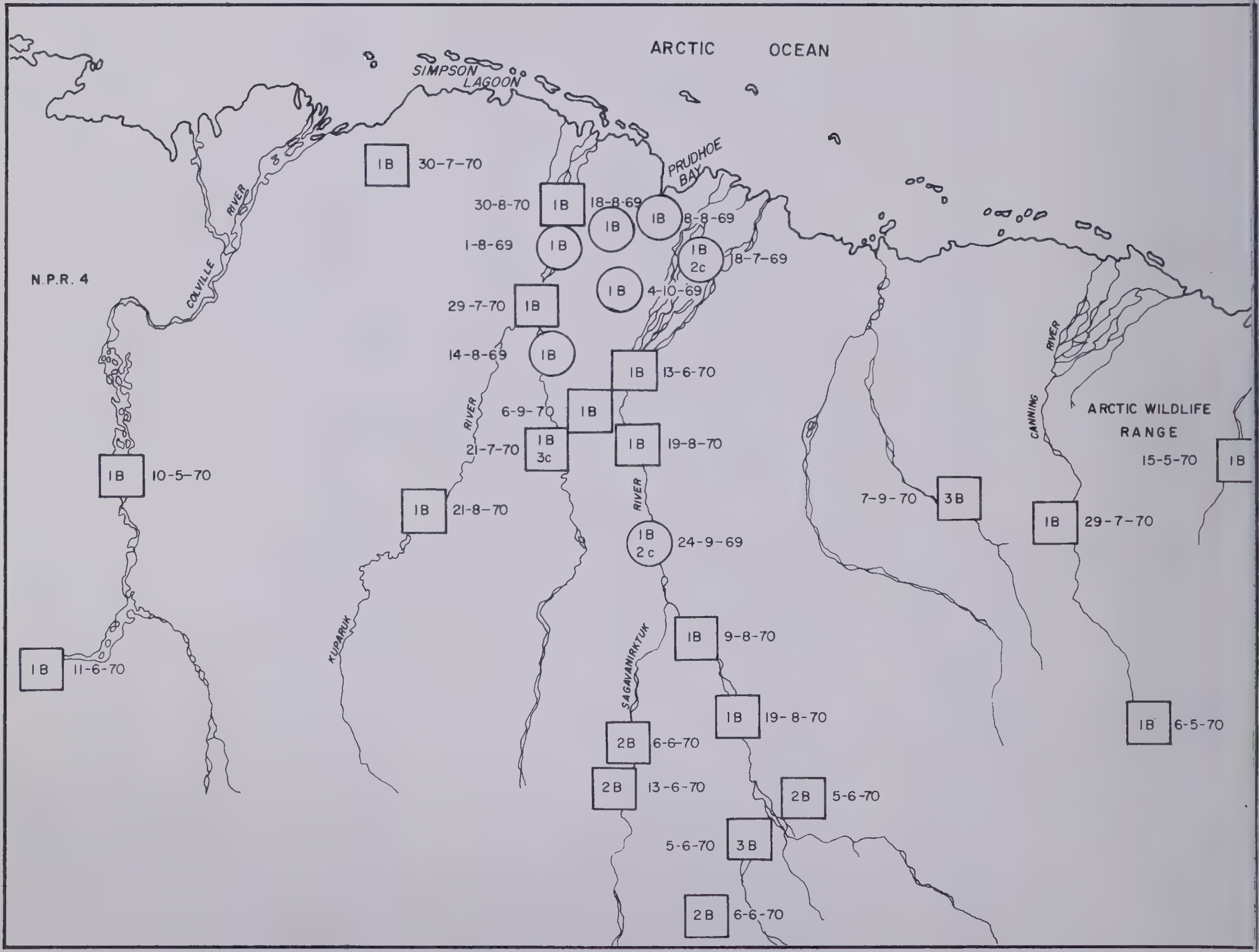
Foxes

From a very high population in 1969, the number of foxes in this area has dropped off to practically nothing. This, of course, is entirely due to the absence of lemming. During 1969, dens of the Arctic white fox could be seen on practically every pingo and suitable river bank. Few have been seen during our 1970 surveys and it is very unlikely that any large numbers will be seen around the camps as they were in 1969. More than likely, it will be several years before the population again reaches a high peak.

Moose

Although the coastal area of this part of the Slope is not inhabited by moose, the rivers and valleys leading toward the coastal plain hold quite a large population. These areas have a heavy growth of woody plants, primarily willow and stunted birch, which provides good food and cover. During the summer, they are frequently seen some distance away from these areas feeding on carex and other grass bordering the lakes. While these animals appear to be in excellent condition and reach the normal size for the moose family, we have yet to see any large sized spreads on any of the bulls, the largest being in the neighborhood of 50 inches, and the majority not much over forty inches.

Figure 4



Casual Sighting Barren Ground Grizzly

1970 sighting □
1969 sighting ○

Further References

Anderson, Rudolph M., 1913. Report on the natural history collections of the expedition. N. V. Stevansson, *My Life With the Eskimos,* McMillan Company, New York.

Bartonek, James C., 1969. *Arctic Slope and Trans-Alaska Pipeline Task Force Report.*

Leffingwell, E. de K., 1919. "The Canning River Region—Northern Alaska." *U. S. Dept. of Interior Geological Survey Paper 109.*

Roguski, Eugene A., 1969. "Sport Fisheries Investigations of Alaska." Monitoring and evaluation of Arctic waters with emphasis on the North Slope drainage.

Thompson, Daniel Q. and Richard A. Person, 1963. "The Eider Pass at Point Barrow, Alaska." *Journal of Wildlife Management.*

Appendix A

Annotated List of Birds

The following is a list of birds observed and recorded during our surveys over a two year period (1969-1970). Nests or broods of all species were not found, therefore some of those listed may be migrants through the Prudhoe Bay area. The majority, however, are known to nest within the district.

Olor Columbianus. (Whistling Swan)

Distribution: Widely scattered over much of the area. Generally frequenting the larger inland lakes. Thirty-seven pairs within the study area in 1970.

Migration: Among the first to arrive in the spring and waste little time in getting down to the business of nesting. The first nest n 1970 was recorded May 28 near Mikkelson Bay. Generally, among the last to leave in the fall. Often the young birds are barely able to fly when freeze-up occurs.

Branta Canadensis Taverneri. (Lesser Canada Goose)

Distribution: General over much of the area and, although the population appears quite high, the actual breeding population is limited. Many non-breeders summer on the Slope area. Nests were found and broods seen on the coastal plain and also inland near the foothills.

Migration: The first geese to arrive in the spring in the Prudhoe Bay area. They are also the first to leave in the fall.

Anser Albifrons. (Whitefronted Goose)

Distribution: Widely scattered from the foothills to the coastal plains. Many nests found and broods seen during surveys in both 1969 and 1970. Moulting flocks plentiful in the Ugnu area and along the Colville River.

Migration: Arrives in the Prudhoe Bay area early, often in company with Lesser Canada Geese. Starts nesting on arrival even though snow is still on the ground. Stays late in the fall and can be found in large flocks grazing on the river bottom flats and out on the tundra.

Branta Nigricans. (Black Brant)

Distribution: Widely scattered along the coast. Deltas and wide flats are their favorite nesting areas. Moulting flocks along with their young can be found on river deltas during the latter part of July.

Migration: While considerable numbers of Brant nest in the Prudhoe Bay area, there is also a migration of considerable magnitude which passes through along the coast during spring, heading east. Fall migrations into the Prudhoe Bay area are light, although fairly large numbers pass through without stopping.

Chen Hyperborea. (Snow Goose)

Distribution: Migrates through the area in good numbers in the spring and fall. Few nesting within the area.

Gavia Arctica. (Arctic Loon)

Distribution: Abundant nester in the Prudhoe Bay area. Carex and grass edged ponds and sloughs are their favorite nesting areas.

Migration: Arrives in the area in late May and first week of June. Migrates late in the fall, often being caught with their young unable to fly at freeze-up.

Gavia Stellata. (Red Throated Loon)

Distribution: Fairly abundant nester throughout the area. Prefers the same type of habitat as the Arctic Loon.

Migration: Arrives in late May and early June. Migrates late in fall often after small lakes and ponds are frozen over.

Gavia Adamsh. (Yellow-Billed Loon)

Distribution: Only a few pairs seen in the area during 1969 and 1970. Most were in the Ugnu area near the Colville River. No nests or broods seen.

Migration: Arrives early June. Fall migration unknown.

Anas Acuta. (Pintail)

Distribution: Fairly abundant nesting species along the coastal plain and around river deltas. The most prominent of the game ducks in this area.

Migration: One of the first to arrive in the spring and among the first to migrate in the fall.

Anas Platyrhynchos. (Mallard)

Distribution: A scarce bird in the Prudhoe Bay area. Only a few pairs having been recorded both in 1969 and 1970. One brood seen in 1970 near the company base camp.

Migration: Arrives first week of June and moves out early in the fall.

Anas Carolinensis. (Green Winged Teal)

Distribution: A few pairs seen in the area in both 1969 and 1970 but no nests or broods seen.

Aythya Marila (Greater Scaup)

Distribution: Widely scattered on both coastal and inland ponds, but not particularly heavy anywhere.

Migration: Fairly late arrival in spring and early migrant in the fall.

Mareca Americana. (American Widgeon)

Distribution: Very widely scattered light population. Most birds seen were in the Colville River vicinity.

Migration: Arrives around first week of June and moves out early in fall.

Somateria Mollissima. (Common Eider)

Distribution: One of the most common ducks in the area. Nests along coast and on islands lying off shore.

Migration: Arrives early in spring and stays quite late in fall.

Somateria Spectabilis. (King Eider)

Distribution: Fairly common along coastal areas. Not as plentiful as the common eider.

Migration: Arrives early in spring and stays fairly late in fall.

Lampronetta Fischeri. (Spectacled Eider)

Distribution: Found in fair numbers on coastal plain area.

Migration: Arrives quite early and leaves well before freeze-up in fall.

Polysticta Stelleri. (Stellers Eider)

Distribution: Widely scattered along coastal plain area but nowhere is the population heavy.

Migration: Arrives early in spring. Migrates quite early in fall.

Malanitta Deglandi. (White Winged Scoter)

Distribution: Widely scattered along coastal plain but nowhere is the population very heavy.

Migration: Late arrival in spring and fairly late migrant in fall.

Malanitta Perspicillata. (Surf Scoter)

Distribution: Very light population and widely scattered along coast.

Migration: Habits unknown.

Histrionicus Histrionicus (Harlequin Duck)

Distribution: One pair and a single male were seen on several different occasions on Sagavanirktok River.

Migration: Unknown.

Clangula Hyemalis. (Old Squaw)

Distribution: The most abundant duck in the Prudhoe Bay area. Nests on coastal ponds and on islands lying offshore.

Migration: Arrives early in the spring and is one of the last birds to leave in the fall.

Falco Peregrinus. (Peregrine Falcon)

Distribution: Widely scattered throughout the study area. Several pairs seen along the Colville River and south along the Sagavanirktok River. One nest located on Franklin Bluffs.

Buteo Lac Opus. (Rough-Legged Hawk)

Distribution: Fairly common and widely scattered throughout our study area.

Falco Rusticolus. (Gyrfalcon)

Distribution: Only pair seen was on the Colville River on July 27, 1970.

Aquila Chrysaetos. (Golden Eagle)

Distribution: Several seen in the upper reaches of the Sagavanirktok River. An immature one on the Colville River July 27, 1970 and one near Mikkelson Bay July 30, 1970, also an immature.

Lacopus Lacopus Alascensis. (Willow Ptarmigan)

Distribution: Widely distributed and very plentiful at times. Some flocks seen in the spring of 1970 were literally in the thousands.

Lacopus Mutus Nelsoni. (Rock Ptarmigan)

Distribution: Few Rock Ptarmigan were noted in the Prudhoe Bay area, but some flocks were seen farther south in the foothills.

Grus Canadensis. (Sandhill Crane)

Distribution: Several pairs seen along the Colville River. One on a nest about 30 miles north of Umiat.

Pluvialis Dominica. (American Golden Plover)

Distribution: Observed at widely scattered points throughout the study area. Nowhere very plentiful.

Squatarola Squatarola. (Black Bellied Plover)

Distribution: Observed at widely scattered points throughout the study area, but not plentiful.

Charadrius Semipalmatus. (Semipalmated Plover)

Distribution: Very common in area. The most abundant of the Plover family.

Arenaria Interpres. (Ruddy Turnstone)

Distribution: Widely scattered, but not plentiful in area.

Erolia Melantos. (Pectoral Sandpiper)

Distribution: Widely scattered and quite common throughout the area.

Erolia Bairdii. (Bairds Sandpiper)

Distribution: Very few seen on coastal area. More plentiful on upper reaches of Sagavanirktok River.

Erolia Minutilla. (Least Sandpiper)

Distribution: Only one seen in the Prudhoe Bay area during 1969 and 1970.

Ereunetes Pusillus. (Semipalmated Sandpiper)

Distribution: Seen on one or two occasions during spring migration. Not recorded during summer nesting season.

Numenius Phaeopus. (Whimbrel)

Distribution: Seen on migrations only along the Sagavanirktok River.

Erolia Alpina. (Dunlin)

Distribution: Widely distributed but nowhere very plentiful. One nest with three eggs found near Kuparuk River.

Phalaropus Fulicarius. (Red Phalarope)

Distribution: One of the most plentiful of the shorebirds seen in the area. Every little pond seems to contain a pair in the spring.

Lobipes Lobatus. (Northern Phalarope)

Distribution: Plentiful in the Prudhoe Bay area but not as abundant as the Red Phalarope.

Stercorarius Longicaudus. (Long Tailed Jaeger)

Distribution: Widely scattered and quite plentiful. Can be seen any day flying over tundra or sitting on small mounds on the tundra.

Stercorarius Pomarinus. (Pomarine Jaeger)

Distribution: Widely scattered but not as plentiful as the Long Tailed or Parasitic. Can be seen in flight and sitting on small mounds on the tundra.

Stercorarius Parasiticus. (Parasitic Jaeger)

Distribution: Fairly widely scattered throughout the study area. Seen in same areas as the Long Tailed and Pomarine.

Larus Hyperboreus Barrovianus. (Glaucous Gull)

Distribution: Widely scattered and quite plentiful in the area. Nests on islands and sandbars of braided streams.

Xema Sabini. (Sabines Gull)

Distribution: Widely scattered but not plentiful. Nests mostly on the offshore islands.

Sterna Paradisaea. (Arctic Tern)

Distribution: Fairly common along th
areas and on the offshore islands.

Nyctea Scandiaca (Snowy Owl)

Distribution: Very plentiful during 19
scarce in 1970. Fluctuates with the le
population which was high in 1969.

Asio Flammeus. (Short Eared Owl)

Distribution: Two recorded in 1970. T
were seen flying over the tundra sou
Franklin Bluffs.

Corvus Corax (Common Raven)

Distribution: Seen at widely scattere
Mostly along rivers and on wolf or gr
bear kills. Not particularly abundant.

Lanius Excubitor (Northern Shrike)

Distribution: One recorded on the Ivis
River on June 5, 1970.

Acanthis Hornemanni. (Redpoll)

Distribution: Recorded on several dif
occasions on the Colville River and o
upper reaches of the Sagavanirktok R
Not seen on the coastal areas.

Passerculus Sandwichensis Anthinu
(Savannah Sparrow)

Distribution: Recorded at several diff
points during 1969 and 1970 but nowh
did we find them in any numbers.

Calcarius Lapponicus. (Lapland Long

Distribution: Very common throughou
region. Can be found practically every
on the tundra.

Plectrophenax Nivalis. (Snow Bunting

Distribution: Common throughout the
One of the first birds to arrive in the spring and lingers on in the fall well after freeze-up.

Date Due

NOV 13 '73			
OCT 23 '75			

11434 Pam:59:(*49)
GAV
1969-70

AUTHOR
GAVIN, Angus

TITLE
Ecological survey of Alaska's north slope, summer 1969 and 1970.

DATE LOANED	BORROWER'S NAME	DATE DUE
NOV 6	J. Burloa	NOV 13 '73
NOV 13	RENEWAL	NOV 20 73
OCT 16 '75	EBCZ.	OCT 23 75
FEB 6 '78	B. Miller	FEB 13 '78
	John Ward	FEB 5 '80

11434

BOREAL INSTITUTE
LIBRARY

University of Alberta Library
0 1620 0333 8256